

Algebraic Concepts
Lesson 18: Linear Equations, Slope and
Direct Variation
Math for Standards

Name _____

Date _____

A linear equation gives the graph of a _____.

A linear equation has two _____ with no _____.

You can create a _____ for any equation to graph it.

If you have a linear equation in _____,

you can graph a point and use the slope to graph the rest (m stands for slope and b gives the y coordinate of the coordinate of the y -intercept).

_____ deals with the ratio of change in y over change in x ; rise over run.

Equation to find slope:

Horizontal lines have slope of _____; vertical lines have an
_____ slope.

A line with a positive slope goes _____ from left to right, and a negative
slope goes _____ from left to right.

Direct proportion is when both variables _____ and gives an
equation _____, where k is the constant of variation.

Example 1: Find the slope of the line passing through (4, 5) and (12, 6). Then describe the line as it move from left to right.

Example 2: Find the slope and y-intercept of the graph of the equation.
 $3x + 4y = 5$

Example 3: There are two health clubs on the same street. Club Global charges a sign-up fee of \$60 and then \$20 per month. Club Local had no sign-up fee, but charges \$30 per month.

- a. Write an equation for the cost C of using each health club for m months.
- b. Rewrite the equations using x as the independent variable y as the dependent variable.
- c. What is the slope of the line representing the cost of Club Global? Club Local?
- d. What do the slopes represent?
- e. What is the y-intercept of each graph?
- f. What do the y-intercepts represent?
- g. What is the cost of membership at each club for 6 months?

Example 4: Decide whether the relationship shows a direct variation. If it does, write the constant of variation and an equation of variation.

a.

Miles Driven x	23	46	69	92
Gallons Used y	1	2	3	4

b.

Miles Driven x	20	40	60	80
Gallons Used y	280	260	240	220